



G00310118

Fig. 1: Accessing Rear Of Primary Piston
Courtesy of GENERAL MOTORS CORP.

MANUAL BLEEDING

WARNING: Brake fluid may irritate eyes and skin. In case of eye contact, rinse thoroughly with water. In case of skin contact, wash with soap and water. In case of ingestion, consult a physician immediately.

CAUTION: Avoid spilling brake fluid onto painted surfaces, electrical connections, wiring, or cables. Brake fluid will damage painted surfaces and cause corrosion to electrical components. If any brake fluid comes in contact with painted surfaces, immediately flush the area with water. If any brake fluid comes in contact with electrical connections, wiring, or cables, use a clean shop cloth to wipe away the fluid.

CAUTION: When adding fluid to the brake master cylinder reservoir, use only Delco Supreme 11(R) (GM P/N 12377967), or equivalent DOT-3 brake fluid from a clean, sealed brake fluid container. The use of any type of fluid other than the recommended type of brake fluid, may cause contamination which could result in damage to the internal rubber seals and/or rubber linings of hydraulic brake system components.

1. Place a clean shop cloth beneath the brake master cylinder to prevent brake fluid spills. With the ignition OFF and the brakes cool, apply the brakes 3-5 times, or until the brake pedal effort increases significantly, in order to deplete the brake booster power reserve.
2. If you have performed a brake master cylinder bench bleeding on this vehicle, or if you disconnected the brake pipes from the master cylinder, you must perform the following steps:
 - A. Ensure that the brake master cylinder reservoir is full to the maximum-fill level. If necessary, add Delco Supreme 11(R) (GM P/N 12377967) or equivalent DOT-3 brake fluid from a clean, sealed brake fluid container. If removal of the reservoir cap and diaphragm is necessary, clean the outside of the reservoir on and around the cap prior to removal.
 - B. With the rear brake pipe installed securely to the master cylinder, loosen and separate the front brake pipe from the front port of the brake master cylinder.
 - C. Allow a small amount of brake fluid to gravity bleed from the open port of the master cylinder.
 - D. Reconnect the brake pipe to the master cylinder port and tighten securely.
 - E. Have an assistant slowly depress the brake pedal fully and maintain steady pressure on the pedal.
 - F. Loosen the same brake pipe to purge air from the open port of the master cylinder.
 - G. Tighten the brake pipe, then have the assistant slowly release the brake pedal.
 - H. Wait 15 seconds, then repeat steps C - G until all air is purged from the same port of the master cylinder.
 - I. With the front brake pipe installed securely to the master cylinder, after all air has been purged from the front port of the master cylinder, loosen and separate the rear brake pipe from the master cylinder, then repeat steps C - H
 - J. After completing the final master cylinder port bleeding procedure, ensure that both of the brake pipe-to-master cylinder fittings are properly tightened.
3. Fill the brake master cylinder reservoir with Delco Supreme 11(R) (GM P/N 12377967), or equivalent DOT-3 brake fluid from a clean, sealed brake fluid container. Ensure that the brake master cylinder reservoir remains at least half-full during this bleeding procedure. Add fluid as needed to maintain the proper level. Clean the outside of the reservoir on and around the reservoir cap prior to removing the cap and diaphragm.
4. Install a proper box-end wrench onto the RIGHT REAR wheel hydraulic circuit bleeder valve.
5. Install a transparent hose over the end of the bleeder valve.
6. Submerge the open end of the transparent hose into a transparent container partially filled with Delco Supreme 11(R) (GM P/N 12377967) or equivalent DOT-3 brake fluid from a clean, sealed brake fluid container.
7. Have an assistant slowly depress the brake pedal fully and maintain steady pressure on the pedal.
8. Loosen the bleeder valve to purge air from the wheel hydraulic circuit.

9. Tighten the bleeder valve, then have the assistant slowly release the brake pedal.
10. Wait 15 seconds, then repeat steps 8 - 10 until all air is purged from the same wheel hydraulic circuit.
11. With the right rear wheel hydraulic circuit bleeder valve tightened securely, after all air has been purged from the right rear hydraulic circuit, install a proper box-end wrench onto the LEFT FRONT wheel hydraulic circuit bleeder valve.
12. Install a transparent hose over the end of the bleeder valve, then repeat steps 7 - 11 .
13. With the left front wheel hydraulic circuit bleeder valve tightened securely, after all air has been purged from the left front hydraulic circuit, install a proper box-end wrench onto the LEFT REAR wheel hydraulic circuit bleeder valve.
14. Install a transparent hose over the end of the bleeder valve, then repeat steps 7 - 11 .
15. With the right front wheel hydraulic circuit bleeder valve tightened securely, after all air has been purged from the left rear hydraulic circuit, install a proper box-end wrench onto the RIGHT FRONT wheel hydraulic circuit bleeder valve.
16. Install a transparent hose over the end of the bleeder valve, then repeat steps 7 - 11 .
17. After completing the final wheel hydraulic circuit bleeding procedure, ensure that each of the 4 wheel hydraulic circuit bleeder valves are properly tightened.
18. Fill the brake master cylinder reservoir to the maximum-fill level with Delco Supreme 11(R) (GM P/N 12377967), or equivalent DOT-3 brake fluid from a clean, sealed brake fluid container.
19. Slowly depress and release the brake pedal. Observe the feel of the brake pedal.
20. If the brake pedal feels spongy, repeat the bleeding procedure again. If the brake pedal still feels spongy after repeating the bleeding procedure, perform the following steps:
 - A. Inspect the brake system for external leaks. See **BRAKE SYSTEM EXTERNAL LEAK INSPECTION** under ADJUSTMENT & INSPECTION.
 - B. Pressure bleed the hydraulic brake system in order to purge any air that may still be trapped in the system.
21. Turn the ignition key ON, with the engine OFF. Check to see if the brake system warning light remains illuminated.
- 22.

CAUTION: DO NOT allow the vehicle to be driven until it is diagnosed and repaired

If the brake system warning light remains illuminated, see **BRAKE WARNING INDICATOR ALWAYS ON** under SYMPTOM TESTS.

PRESSURE BLEEDING

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